W56/Red

1990 U.S. Wheat Quality

United States Department of Agriculture

Federal Grain Inspection Service

November 1990

1990 Preliminary New Crop Hard Red Spring (HRS) Wheat Report

FGIS annually monitors the quality of the wheat, soybean, and corn crops. This report gives the condition of the portion of the HRS crop officially inspected during the first 4 weeks of local harvests.

Highlights:

The 1990 HRS survey found lower average total damaged kernels (DKT), foreign material (FM), total defects, and protein with higher test weight (TW), and moisture than found in the 1989 study. Over 84 percent of the graded samples received the top grade of U.S. No. 1, 5 percent more than in last year's study.

The study indicated 1990 HRS is cleaner than found in prior new crop studies. The FM average was 0.16 percent compared to the 1989 FM study average of 0.23 percent. The lower dockage values reported last year continued at nearly the same level.

The improvement in grades is primarily attributable to the decrease in total defects. The total defects average dropped from 3.5 percent in the 1989 study to 2.6 percent in this study. This decrease in total defects reflects the lower level of FM and DKT. The DKT average dropped from 1.8 percent to 1.1 percent.

The average TW was 60.9 pounds per bushel and the average moisture was 11.6 percent. These averages are the highest levels found in the last five new crop surveys.

Contrasting with the improved quality indicated by the assigned grades, the average protein level decreased from 14.6 percent in the 1989 study to 14.2 percent in this study. The increased number of protein measurements collected this year reflects concern about lower protein levels. The average protein in the Upper Midwestern States dropped 0.7 percent or more from the averages reported for these States in the 1989 study.

The attached tables are **preliminary** versions of the HRS data that will appear in the final new crop wheat quality report. That report will contain any corrections or additions to these tables, with corresponding charts, additional tables, and discussion of this and other information. These tables are provided in preliminary form to allow early access to this data. Preliminary reports on other wheat classes will be available before publication of the final wheat report.

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WHEAT GRADES AND GRADE REQUIREMENTS

Wheat is divided into eight classes: Hard Red Spring wheat, Hard Red Winter wheat, Soft Red Winter wheat, Durum wheat, Soft White wheat, Hard White wheat, Unclassed wheat, and Mixed wheat. The classes Hard Red Spring wheat, Durum wheat, and Soft White wheat are further divided into subclasses. There are no subclasses in the classes Hard Red Winter wheat, Soft Red Winter wheat, Hard White wheat, Unclassed wheat, and Mixed wheat. Each class and subclass is divided into five U.S. numerical grades and U.S. Sample grade. Special grades are provided to emphasize special qualities or conditions affecting the value of wheat. Special grades are added to and made a part of the grade designation. They do not affect the numerical or Sample grade designation.

U.S. Standards for Wheat

Grade	Minimum Limits of -		Maximum Limits of -						
	Test weight per bushel		Damaged Kernels		Foreign Material	Shrunken and broken kernels	Defects (total) 3/	Wheat of other classes 4/	
	Hard Red Spring wheat or White Club wheat 1/ (pounds)	All other classes and subclasses (pounds)	Heat-damaged kernels (percent)	Total 2/ (percent)	(percent)	(percent)	(percent)	Contrasting classes (percent)	Total 5/ (percent)
US No. 1	58.0	60.0	0.2	2.0	0.5	3.0	3.0	1.0	3.0
US No. 2	57.0	58.0	0.2	4.0	1.0	5.0	5.0	2.0	5.0
US No. 3	55.0	56.0	0.5	7.0	2.0	8.0	8.0	3.0	10.0
US No. 4	53.0	54.0	1.0	10.0	3.0	12.0	12.0	10.0	10.0
US No. 5	50.0	51.0	3.0	15.0	5.0	20.0	20.0	10.0	10.0
US Sample Grade									

U.S. Sample grade shall be wheat that:
(a) Does not meet the requirements for the grades U.S. Nos. 1, 2, 3, 4, or 5; or
(b) Contains 8 or more stones or any number of stones which have an aggregate weight in excess of 0.2 percent of the sample weight, 2 or more pieces of glass, 3 or more crotalaria seeds (*Crotalaria spp.*), 2 or more castor beans (*Ricinus communis*), 4 or more particles of an unknown foreign substance(s) or a commonly recognized harmful or toxic substance(s), 2 or more rodent pellets, bird droppings, or an equivalent quantity of other animal filth per 1,000 grams of wheat; or
(c) Has a musty, sour, or commercially objectionable foreign odor (except smut or garlic odor); or
(d) Is heating or otherwise of distinctly low quality.

1/ These requirements also apply when Hard Red Spring or White Club wheat predominate in a sample of Mixed wheat.
2/ Includes heat-damaged kernels.
3/ Defects include damaged kernels (total), foreign material, and shrunken and broken kernels. The sum of these three factors may not exceed the limit for defects for each numerical grade.
4/ Unclassed wheat of any grade may contain not more than 10.0 percent of wheat of other classes.
5/ Includes contrasting classes.

To obtain a copy of the final 1990 new crop wheat report when published, please write:

1990 New Crop Wheat Quality
Allen Atwood, FGIS, RMD, RM. 0632-S
P.O. Box 96454
Washington, D.C. 20090-6454

Table 10 A. -- 1990 new crop wheat survey, Hard Red Spring wheat: Number of samples by grade and State

States	Grade assigned							
	U.S. No. 1	U.S. No. 2	U.S. No. 3	U.S. No. 4	U.S. No. 5	Sample grade	Factor only	All grades
	Number of samples							
California	17	5	.	.	.	.	.	22
Colorado	1	.	.	.	.	.	.	1
Idaho	47	3	8	2	1	.	.	61
Minnesota	284	60	21	3	1	1	466	836
Montana	156	24	17	9	1	9	38	254
North Dakota	975	53	12	2	.	8	120	1,170
Oregon	1	.	.	.	.	.	.	1
South Dakota	1	.	1	.	.	1	.	3
Utah	13	6	8	2	.	1	.	32
Washington	249	35	34	15	6	4	10	353
Wisconsin	473	32	5	2	1	3	.	536
All States	2,219	238	106	35	10	27	634	3,269

. = No samples collected

Table 10 B. -- 1990 new crop wheat survey, Hard Red Spring wheat: Average test weight by grade and State

States	Grade assigned															
	U.S. No. 1		U.S. No. 2		U.S. No. 3		U.S. No. 4		U.S. No. 5		Sample grade		Factor only		All grades	
	Avg.	Est	Avg.	Est	Avg.	Est	Avg.	Est	Avg.	Est	Avg.	Est	Avg.	Est	Avg.	Est
California	60.94	C	59.96	C	.	.	.	.	.	.	.	.	.	.	60.72	C
Colorado	62.10	.	.	.	.	.	.	.	.	.	.	.	.	.	62.10	.
Idaho	60.66	C	58.73	E	57.59	.	53.45	.	58.40	.	.	.	.	.	59.89	C
Minnesota	60.96	B	59.21	C	57.41	D	54.27	.	60.80	.	58.50	.	.	.	60.41	B
Montana	60.78	B	59.12	D	57.36	D	57.06	E	60.00	.	57.46	E	.	.	60.03	C
North Dakota	61.41	B	60.56	C	59.30	E	59.95	.	.	.	57.15	E	61.25	.	61.31	B
Oregon	58.50	.	.	.	.	.	.	.	.	.	.	.	.	.	58.50	.
South Dakota	60.50	.	.	.	60.10	.	.	.	.	.	58.10	.	.	.	59.57	.
Utah	61.23	D	58.62	E	56.60	E	55.15	.	.	.	61.00	.	.	.	59.20	D
Washington	61.84	B	59.37	C	57.10	D	56.61	E	53.13	E	61.50	.	.	.	60.74	C
Wisconsin	61.10	B	59.73	C	60.94	D	57.00	.	61.30	.	60.53	.	.	.	60.94	B
All States	61.27	A	59.63	B	57.66	C	56.47	D	55.93	E	58.50	E	61.25	.	60.86	B

Test weight was reported for 2,637 samples.

Estimate category:

A	Plus or minus 0.05 or less	D	Plus or minus 1.0 or less
B	Plus or minus 0.2 or less	E	Plus or minus 3.0 or less
C	Plus or minus 0.5 or less	F	Plus or minus 3.0 or more

. = Insufficient data

TABLES BASED ON PRELIMINARY ANALYSIS

Table 10 C. -- 1990 new crop wheat survey, Hard Red Spring wheat: Average foreign material by grade and State

States	Grade assigned															
	U.S. No. 1		U.S. No. 2		U.S. No. 3		U.S. No. 4		U.S. No. 5		Sample grade		Factor only		All grades	
	Avg.	Est	Avg.	Est	Avg.	Est	Avg.	Est	Avg.	Est	Avg.	Est	Avg.	Est	Avg.	Est
California	0.24	B	0.48	C	.	.	.	.	.	.	.	.	.	.	0.36	B
Colorado	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Idaho	0.30	.	.	.	0.10	.	0.00	.	4.50	.	.	.	.	.	0.74	E
Minnesota	0.11	A	0.22	A	0.18	A	0.17	.	4.70	.	0.30	.	.	.	0.15	A
Montana	0.22	B	0.39	B	0.59	C	2.55	.	3.60	.	0.10	.	.	.	0.53	B
North Dakota	0.12	A	0.34	B	0.55	C	0.15	.	.	.	0.03	A	1.20	.	0.21	B
Oregon	0.00	.	.	.	.	.	.	.	.	.	.	.	.	.	0.00	.
South Dakota	0.20	.	.	.	0.80	.	.	.	.	.	0.10	.	.	.	0.37	.
Utah	0.30	.	0.16	B	0.42	.	0.25	.	.	.	.	.	.	.	0.28	B
Washington	0.03	A	0.16	B	0.21	B	0.07	A	0.05	B	0.00	.	0.00	.	0.06	A
Wisconsin	0.15	A	0.21	A	0.54	D	0.10	.	4.40	.	0.23	.	.	.	0.17	A
All States	0.12	A	0.24	A	0.32	B	0.28	C	1.75	E	0.08	A	0.80	.	0.16	A

FM was reported for 1,403 samples.

Table 10 D. -- 1990 new crop wheat survey, Hard Red Spring wheat: Average total damaged kernels by grade and State

States	Grade assigned															
	U.S. No. 1		U.S. No. 2		U.S. No. 3		U.S. No. 4		U.S. No. 5		Sample grade		Factor only		All grades	
	Avg.	Est	Avg.	Est	Avg.	Est	Avg.	Est	Avg.	Est	Avg.	Est	Avg.	Est	Avg.	Est
California	0.16	B	0.46	C	.	.	.	.	.	.	.	.	.	.	0.31	B
Colorado	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Idaho	0.00	.	.	.	0.00	.	0.00	.	0.00	.	.	.	.	.	0.00	.
Minnesota	0.30	A	1.62	C	2.69	D	3.60	.	0.40	.	4.60	.	4.48	F	0.86	B
Montana	0.28	B	1.71	D	1.63	E	2.27	.	.	.	5.30	.	.	.	1.32	D
North Dakota	0.60	B	1.04	C	2.84	E	3.95	.	.	.	23.29	F	4.11	E	2.93	D
Oregon	0.00	.	.	.	.	.	.	.	.	.	.	.	.	.	0.00	.
South Dakota	0.20	.	.	.	0.30	.	.	.	.	.	0.20	.	.	.	0.23	.
Utah	0.00	.	0.56	E	0.00	.	0.00	.	.	.	.	.	.	.	0.19	C
Washington	0.49	B	1.98	D	2.51	E	6.57	E	8.97	.	24.55	.	.	.	2.89	E
Wisconsin	0.38	A	0.54	B	0.84	E	0.20	.	0.20	.	3.63	.	.	.	0.42	A
All States	0.37	A	1.17	B	2.01	C	3.44	E	4.58	F	14.83	F	4.16	F	1.08	B

DKT was reported for 1,193 samples.

Estimate category:

A	Plus or minus 0.05 or less	D	Plus or minus 1.0 or less
B	Plus or minus 0.2 or less	E	Plus or minus 3.0 or less
C	Plus or minus 0.5 or less	F	Plus or minus 3.0 or more

. = Insufficient data

TABLES BASED ON PRELIMINARY ANALYSIS

Table 10 E. -- 1990 new crop wheat survey, Hard Red Spring wheat: Average shrunken and broken kernels by grade and State

States	Grade assigned															
	U.S. No. 1		U.S. No. 2		U.S. No. 3		U.S. No. 4		U.S. No. 5		Sample grade		Factor only		All grades	
	Avg.	Est	Avg.	Est	Avg.	Est	Avg.	Est	Avg.	Est	Avg.	Est	Avg.	Est	Avg.	Est
California	1.30	C	2.52	C	.	.	.	.	.	.	.	.	.	.	1.81	C
Colorado	1.60	.	.	.	.	.	.	.	.	.	.	.	.	.	1.60	.
Idaho	1.75	B	3.57	.	5.62	D	8.80	.	3.10	.	.	.	.	.	2.21	C
Minnesota	1.23	A	1.78	B	1.90	C	2.50	.	1.90	.	1.00	.	.	.	1.39	B
Montana	1.11	B	1.34	C	2.11	D	1.31	D	0.20	.	0.98	D	1.10	.	1.27	B
North Dakota	1.35	A	2.44	C	1.36	C	1.15	.	.	.	0.82	C	0.60	.	1.40	A
Oregon	2.50	.	.	.	.	.	.	.	.	.	.	.	.	.	2.50	.
South Dakota	1.40	.	.	.	1.30	.	.	.	.	.	1.10	.	.	.	1.27	.
Utah	1.57	C	3.25	D	3.24	E	8.00	.	.	.	1.70	.	.	.	2.71	D
Washington	0.75	B	1.96	C	2.46	D	2.69	E	3.65	E	0.13	.	0.00	.	1.17	B
Wisconsin	1.36	A	2.78	B	1.86	D	2.35	.	1.80	.	1.37	.	.	.	1.51	A
All States	1.26	A	2.22	B	2.43	C	2.99	D	2.89	E	0.87	C	0.58	.	1.42	A

SHBN was reported for 2,478 samples.

Table 10 F. -- 1990 new crop wheat survey, Hard Red Spring wheat: Average total defects by grade and State

States	Grade assigned															
	U.S. No. 1		U.S. No. 2		U.S. No. 3		U.S. No. 4		U.S. No. 5		Sample grade		Factor only		All grades	
	Avg.	Est	Avg.	Est	Avg.	Est	Avg.	Est	Avg.	Est	Avg.	Est	Avg.	Est	Avg.	Est
California	1.72	C	3.46	B	.	.	.	.	.	.	.	.	.	.	2.59	D
Colorado	1.60	.	.	.	.	.	.	.	.	.	.	.	.	.	1.60	.
Idaho	1.80	.	.	.	6.33	.	6.60	.	7.60	.	.	.	.	.	5.90	E
Minnesota	1.65	B	3.60	B	4.76	D	6.27	.	7.00	.	5.90	.	.	.	2.29	B
Montana	1.81	C	3.42	C	4.88	E	3.70	.	.	.	.	.	.	.	3.20	C
North Dakota	1.98	B	3.14	C	4.86	E	5.25	.	.	.	24.14	F	2.05	.	3.95	E
Oregon	2.50	.	.	.	.	.	.	.	.	.	.	.	.	.	2.50	.
South Dakota	1.80	.	.	.	2.40	.	.	.	.	.	1.40	.	.	.	1.87	.
Utah	2.22	.	4.14	D	4.75	.	8.25	.	.	.	.	.	.	.	4.34	D
Washington	1.22	C	3.65	D	5.15	D	7.57	E	11.60	.	24.70	.	.	.	4.28	E
Wisconsin	1.89	A	3.54	B	3.24	E	3.15	.	6.40	.	5.23	.	.	.	2.09	B
All States	1.81	A	3.51	B	4.81	C	6.34	E	9.30	F	17.70	F	2.05	.	2.58	B

Total defects was reported for 1,111 samples.

Estimate category:

A	Plus or minus 0.05 or less	D	Plus or minus 1.0 or less
B	Plus or minus 0.2 or less	E	Plus or minus 3.0 or less
C	Plus or minus 0.5 or less	F	Plus or minus 3.0 or more

. = Insufficient data

TABLES BASED ON PRELIMINARY ANALYSIS

Table 10 G. -- 1990 new crop wheat survey, Hard Red Spring wheat: Average dockage by grade and State

States	Grade assigned															
	U.S. No. 1		U.S. No. 2		U.S. No. 3		U.S. No. 4		U.S. No. 5		Sample grade		Factor only		All grades	
	Avg.	Est	Avg.	Est	Avg.	Est	Avg.	Est	Avg.	Est	Avg.	Est	Avg.	Est	Avg.	Est
California	0.52	B	0.84	C	.	.	.	.	.	.	.	.	.	.	0.59	B
Colorado	0.70	.	.	.	.	.	.	.	.	.	.	.	.	.	0.70	.
Idaho	0.67	B	1.00	.	1.49	D	2.30	.	1.30	.	.	.	.	.	0.85	B
Minnesota	0.76	B	1.06	B	1.49	C	0.87	.	0.60	.	2.20	.	1.20	.	0.86	B
Montana	0.88	B	1.53	D	1.12	C	2.99	E	2.60	.	1.12	D	.	.	1.07	B
North Dakota	0.56	A	0.70	B	0.78	B	0.25	.	.	.	0.90	C	0.40	.	0.57	A
Oregon	0.20	.	.	.	.	.	.	.	.	.	.	.	.	.	0.20	.
South Dakota	0.80	.	.	.	1.90	.	.	.	.	.	1.50	.	.	.	1.40	.
Utah	0.36	B	0.95	C	1.25	E	2.90	.	.	.	0.20	.	.	.	0.85	C
Washington	0.61	B	0.85	B	1.00	C	1.22	C	1.73	D	0.52	.	0.00	.	0.72	B
Wisconsin	0.75	A	1.00	C	1.20	C	0.70	.	2.00	.	0.93	.	.	.	0.78	A
All States	0.65	A	0.97	B	1.17	B	1.72	C	1.69	C	0.97	C	0.50	.	0.73	A

Dockage was reported for 2,613 samples.

Table 10 H. -- 1990 new crop wheat survey, Hard Red Spring wheat: Average moisture by grade and State

States	Grade assigned															
	U.S. No. 1		U.S. No. 2		U.S. No. 3		U.S. No. 4		U.S. No. 5		Sample grade		Factor only		All grades	
	Avg.	Est	Avg.	Est	Avg.	Est	Avg.	Est	Avg.	Est	Avg.	Est	Avg.	Est	Avg.	Est
California	10.34	C	10.18	D	.	.	.	.	.	.	.	.	.	.	10.30	C
Colorado	9.80	.	.	.	.	.	.	.	.	.	.	.	.	.	9.80	.
Idaho	8.97	C	8.80	.	8.46	C	7.80	.	7.70	.	.	.	.	.	8.84	C
Minnesota	12.34	B	12.50	B	12.68	B	12.83	.	12.00	.	14.10	.	12.80	.	12.40	B
Montana	10.51	B	10.85	D	11.17	D	10.82	D	12.20	.	12.83	E	10.75	.	10.72	B
North Dakota	12.10	A	11.48	C	11.87	C	11.80	.	.	.	11.83	E	12.50	.	12.06	A
Oregon	7.80	.	.	.	.	.	.	.	.	.	.	.	.	.	7.80	.
South Dakota	11.60	.	.	.	11.20	.	.	.	.	.	12.70	.	.	.	11.83	.
Utah	9.92	C	9.20	E	7.91	D	8.70	.	.	.	9.50	.	.	.	9.19	C
Washington	9.11	B	9.58	C	8.98	C	10.25	D	10.07	E	8.73	.	.	.	9.20	B
Wisconsin	12.38	B	11.88	B	11.52	D	11.75	.	11.10	.	13.67	.	.	.	12.33	B
All States	11.65	B	11.36	B	10.41	C	10.56	D	10.34	E	11.94	D	12.17	D	11.56	A

Moisture was reported for 2,641 samples.

Estimate category:

A	Plus or minus 0.05 or less	D	Plus or minus 1.0 or less
B	Plus or minus 0.2 or less	E	Plus or minus 3.0 or less
C	Plus or minus 0.5 or less	F	Plus or minus 3.0 or more

. = Insufficient data

TABLES BASED ON PRELIMINARY ANALYSIS

Table 10 I. -- 1990 new crop wheat survey, Hard Red Spring wheat: Average protein by grade and State

States	Grade assigned															
	U.S. No. 1		U.S. No. 2		U.S. No. 3		U.S. No. 4		U.S. No. 5		Sample grade		Factor only		All grades	
	Avg.	Est	Avg.	Est	Avg.	Est	Avg.	Est	Avg.	Est	Avg.	Est	Avg.	Est	Avg.	Est
California	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Colorado	16.10	.	.	.	.	.	.	.	.	.	.	.	.	.	16.10	.
Idaho	13.66	C	14.30	.	14.10	.	18.30	.	.	.	.	.	.	.	13.80	C
Minnesota	14.16	B	14.45	C	14.56	C	13.90	.	13.90	.	14.40	.	14.13	B	14.17	A
Montana	14.98	B	14.42	D	14.86	D	15.33	E	14.10	.	14.64	E	14.58	D	14.86	B
North Dakota	14.24	A	14.47	C	14.89	D	15.15	.	.	.	14.17	E	13.82	C	14.23	A
Oregon	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
South Dakota	.	.	.	.	.	.	.	.	.	.	12.70	.	.	.	12.70	.
Utah	15.49	C	16.58	D	15.98	E	15.30	.	.	.	16.50	.	.	.	15.82	C
Washington	13.98	B	14.80	C	15.33	C	14.61	C	15.87	E	13.45	.	15.48	D	14.28	B
Wisconsin	13.74	B	13.97	B	14.20	C	15.85	.	14.30	.	13.40	.	.	.	13.77	B
All States	14.14	A	14.45	B	14.97	C	14.99	C	15.28	D	14.09	D	14.13	B	14.20	A

Protein was reported for 3,126 samples.

Estimate category:

A	Plus or minus 0.05 or less	D	Plus or minus 1.0 or less
B	Plus or minus 0.2 or less	E	Plus or minus 3.0 or less
C	Plus or minus 0.5 or less	F	Plus or minus 3.0 or more

. = Insufficient data

TABLES BASED ON PRELIMINARY ANALYSIS